

Managing Excess Reinsurance Costs

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John G. Chino, ARM-P
Area Senior Vice President
Arthur J Gallagher & Co.

Michael Petrocik, FCAS, MAAA
Vice President, Chief Actuarial Officer
Specialty Markets Division
Munich Reinsurance America, Inc.



- Introduction
- Operational Concerns
- Underwriting Considerations
- Structural Options
- Statistical Illustration:
 Dynamic Reinsurance Analysis



Introduction

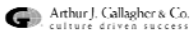
- There are no magic solutions for managing rising reinsurance or excess costs.
- Many cost drivers are out of the control of the public agency, pool or reinsurer.



Introduction

Q: What is the true cost of reinsurance?

A: It is the difference between reinsurance premium and the cost of retaining the losses.



Operational Concerns

Do any exposures exist which cause inordinate excess costs?

JPA's

- Operations of some members may differ from the main body of members i.e. utilities or law enforcement at a school.
- Can these be separately insured?

Individual Public Agency

- Can some Agency functions be outsourced to transfer the liability?



Operational Concerns

For both JPA and individual public agency accounts, it is important to properly allocate the reinsurance costs to the correct exposures.

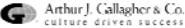

- The reinsurer can help allocate costs.
- Properly allocating reinsurance costs to the correct member/division/function may alter the apparent value of the operation.



Underwriting Considerations

Utilizing the Reinsurer's Loss Control Department



- Safety inspections
- Sharing of lessons learned from other public agency clients
- Preventing losses avoids:
 - Reinsurance costs
 - Uninsured costs

Underwriting Considerations

Submission Data



- High quality data results in fairer reinsurance costs.
- When facing uncertainty in the data, a reinsurance actuary must err on the side of caution.
- Shortfalls in submission data often result in use of industry data instead.

Underwriting Considerations

Submission Data

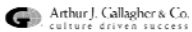
- If you believe your JPA or Agency to be better than average, it is in your best interest to prove it.
- Highly valuable data:
 - Loss development triangles
 - Average severity of loss
 - Closed and open claim statistics

Structural Options

Specific Attachment Points

- Inflation (trend) affects different layers in very different ways. It is kindest to the ground-up layer and harshest to the excess layer. The increased effect on the excess layer is referred to as “leveraged trend.”
- Leveraged trend is due to the interplay of limits and attachment points on claim values. Let’s look at an example.



Structural Options

Specific Attachment Points

Policy Limit \$1,000,000
Attachment Point \$100,000
Inflation Rate 20%

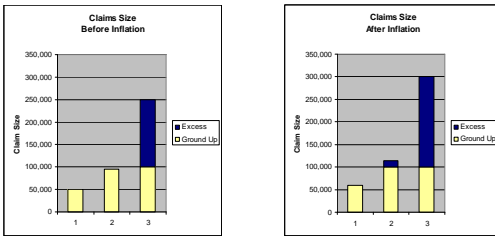
Before Inflation			After Inflation		
Total	Ground-Up	Excess	Total	Ground-Up	Excess
50,000	50,000	0	60,000	60,000	0
95,000	95,000	0	114,000	100,000	14,000
250,000	100,000	150,000	300,000	100,000	200,000

Note: Data is fictional – for illustration only



Structural Options

Specific Attachment Points



Note: Data is fictional – for illustration only



Structural Options

Specific Attachment Points

Now let's look at the inflation rate for each layer.

	<u>Before</u>	<u>After</u>	<u>Inflation</u>
Total Claim	395,000	474,000	20.0%
Ground-Up Layer	245,000	260,000	6.1%
Excess Layer	150,000	214,000	42.7%



Structural Options

Aggregate Deductibles

- One way to share in a layer is to keep the first portion of losses in an excess layer.
- Results in cost savings when compared to ceding the entire layer.
- JPA/Agency can calculate maximum cost.



Structural Options

Aggregate Deductibles

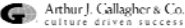

- Reinsurers typically do not reduce the reinsurance premium by the full amount of the deductible.
- More typical: A reduction of 65 to 90 cents on the dollar.
- Price reduction based on expected losses for the deductible.
- As the deductible increases, the corresponding credit given also increases, though more slowly.
- Greater chance the full deductible will be used.



Structural Options

Aggregate Deductibles



<p style="text-align: center;">Benefits</p> <ul style="list-style-type: none"> • Cost savings • Maximum retained exposure is known 	<p style="text-align: center;">Risk</p> <ul style="list-style-type: none"> • Credit to pricing is less than exposure retained
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Structural Options

Co-Participation



- Another way to share in a layer is through co-participation.
- Easy to calculate the cost savings (percentage of premium retained).

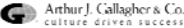

Structural Options

Co-Participation

<p style="text-align: center;">Benefits</p> <ul style="list-style-type: none"> • Cost savings • Easily understood pricing 	<p style="text-align: center;">Risk</p> <ul style="list-style-type: none"> • No limit on maximum exposure
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**Statistical Illustration:
Dynamic Reinsurance Analysis**



Dynamic Reinsurance Analysis (DRA)

How much risk am I taking by changing my retention?

How bad might a bad year get?

How often will my new retention cost me more money?


What's the probability of losing more than ten million dollars?



Dynamic Reinsurance Analysis (DRA)

Two undeniable facts

- In a typical year, the less reinsurance you buy, the lower your cost will be
 - This is true even when you include the additional retained losses
- Buying less reinsurance means more risk to your balance sheet and income statement
 - There will be more uncertainty in your results

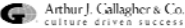



Key question is when is the cost savings worth the additional risk ?



Dynamic Reinsurance Analysis (DRA)

- DRA is a tool for evaluating different reinsurance options.
- DRA provides numerical estimates of the benefits and risks of different reinsurance structures.
- DRA focuses on the cost of the inevitable “bad year” that happens in a defined return period.
- DRA illustrates the ability of reinsurance to mitigate the potential risk.

Dynamic Reinsurance Analysis (DRA)



Pricing Analysis	Dynamic Reinsurance Analysis
<ul style="list-style-type: none"> – Pricing uses past experience to forecast expected losses. – Focuses on the amount of loss in an average year. – End result is the required premium for a specific reinsurance structure. 	<ul style="list-style-type: none"> – DRA uses same experience to simulate the variety of outcomes that might be faced. – Focuses on the worst potential outcomes. – End result is the relative cost savings and risks in different reinsurance structures.

Dynamic Reinsurance Analysis (DRA)

Outline of the Process

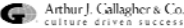

- Identify client’s needs and objectives
 - **Return** – Minimize total cost of large losses
(Maximize savings with respect to reinsurance costs)
 - **Risk** – Minimize degree of downside risk in worst cases
(Maximize benefit of reinsurance coverage)
- Model underlying gross losses by subject line
- Select reinsurance options to compare
 - *How does changing excess retentions impact net results?*
 - *What is the impact of corridor retention options?*
- Run model several times with varying structures

Dynamic Reinsurance Analysis (DRA)

Return – Minimize expected “Total Cost”



- **Total Cost** = Ceded Premium
+ Retained Layer Loss
+ Retained Corridor Loss
= Total Cost to Company
- **Ceded premium**
- Upfront cost for buying reinsurance
- **Retained layer loss**
- Net retained losses for portion of each loss over base attachment point
- Losses below this attachment are constant across every option and can be removed from the analysis since they will not impact the results
- **Retained corridor loss**
- Net retained losses due to corridor retention terms

Dynamic Reinsurance Analysis (DRA)

Risk – Minimize probability of “Unacceptable Cost”

- Unacceptable cost is an outcome that would put critical stress on client’s operations based on downside risk
- Greatly reduce or even wipe out any reserve funds
- Downside risk is average total cost in worst number of years
- Select downside risk measure consistent with layer
 - Low working layers usually test at 1 in 10 year.
 - Catastrophe covers usually test at 1 in 100 or 250 year level
- For 10,000 iterations, downside risk for a low working layer is average of the worst 1000 runs, i.e. 10% or 1 in 10

Dynamic Reinsurance Analysis (DRA)

Histogram 1
SAP Income Statement: Net underwriting gain or (loss) / 2007

